CDC

May 8, 1998 / Vol. 47 / No. 17

MMWR™

MORBIDITY AND MORTALITY WEEKLY REPORT

National Arthritis Month — May 1998

May is National Arthritis Month. Arthritis and other rheumatic conditions are the leading cause of disability in the United States, affecting 42.7 million persons in 1998, and is projected to affect approximately 60 million by 2020. This year's theme is "Make This The Year You Get Active." The Arthritis Foundation emphasizes early diagnosis and treatment of arthritis and the benefits of regular physical activity in controlling arthritis pain and disability. The Arthritis Foundation also promotes the 1996 Surgeon General's Report on Physical Activity and Health by encouraging persons of all ages to engage in regular, moderate physical activity to build and maintain healthy bones, muscles, and joints.

Additional information about arthritis, National Arthritis Month activities, and ongoing local Arthritis Foundation programs and services is available from the Arthritis Foundation, telephone (800) 283-7800, or the World-Wide Web http://www.arthritis.org. A National Arthritis Month Health Professionals Kit and media information are available, telephone (404) 872-7100, extension 6225.

Prevalence and Impact of Chronic Joint Symptoms — Seven States, 1996

Arthritis and other rheumatic conditions are the leading cause of disability in the United States (*1*), affecting 42.7 million persons and costing $65 billion in 1992 (*2*). These numbers will increase by 2020 as the population ages (*3*). Few surveys exist to directly determine the prevalence and impact of arthritis at the state level (*4*). To address this gap, in 1995 state health departments and CDC developed a standardized, optional arthritis module for the Behavioral Risk Factor Surveillance System (BRFSS). This report summarizes the results of the analyses of 1996 data in seven states. The findings indicate that the prevalence and impact of "chronic joint symptoms"—a proposed indicator for true arthritis and other rheumatic conditions—is high and variable among states and that a large proportion of persons with arthritis diagnosed by a doctor do not know the type of arthritis they have.

The BRFSS is an ongoing, state-based, random-digit–dialed telephone survey that collects self-reported health information from a representative sample of the civilian,

Chronic Joint Symptoms — Continued

noninstitutionalized U.S. population aged ≥18 years (*5*). In 1996, a total of 15,656 persons in Arizona (n=1957), Kansas (n=2008), Missouri (n=1550), Montana (n=1803), New Jersey (n=2894), Pennsylvania (n=3595), and Rhode Island (n=1849) responded to the arthritis module. Persons who had chronic joint symptoms were defined as those answering "yes" to two questions: "During the past 12 months, have you had pain, aching, stiffness or swelling in or around a joint?" and "Were these symptoms present on most days for at least one month?" Persons who had activity limitation attributable to chronic joint symptoms were defined as those also answering "yes" to "Are you now limited in any way in any activities because of joint symptoms?" Persons were considered to have had arthritis diagnosed by a doctor if they answered "yes" to "Have you ever been told by a doctor that you have arthritis?" Persons who had arthritis diagnosed by a doctor were considered to know their type of arthritis if they specified a type in response to the question "What type of arthritis did the doctor say you have?" and were considered to have current doctor-based treatment for arthritis if they answered "yes" to "Are you currently being treated by a doctor for arthritis?" Weighted prevalence was used to estimate the number of persons with chronic joint symptoms in each state. Data were analyzed using SUDAAN® (*6*), and the results were weighted to account for the complex sample survey design.

The prevalence of chronic joint symptoms ranged from 12.3% (using the weighted prevalence, an estimated 742,000 persons) in New Jersey to 22.7% (901,000 persons) in Missouri (Table 1). Population prevalences of self-reported activity limitation attributable to chronic joint symptoms ranged from 5.5% in New Jersey (304,000 persons) to 11.2% (72,000 persons) in Montana. Of persons who had chronic joint symptoms, 43.3% (Missouri) to 57.9% (Arizona) were limited in activity. Among persons who had chronic joint symptoms in the seven states, 55.7%–65.6% had arthritis diagnosed by a doctor. Among persons with arthritis diagnosed by a doctor, 30.5%–53.3% did not know their type of arthritis, and 43.0%–52.5% were being treated by a doctor for their arthritis.

Within-state analyses indicated similar distributions of demographic and other variables. For example, in Pennsylvania, the prevalence of chronic joint symptoms increased markedly with age and was higher among women than men (Table 2). After adjustment for age and sex, prevalence was higher among non-Hispanic whites; among persons with fair or poor health status; and among persons who were overweight and physically inactive. The findings for persons who had activity limitation attributable to chronic joint symptoms showed similar patterns.

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Editorial Note: The findings in this report indicate that the prevalence of and activity limitation attributable to chronic joint symptoms are high and variable among the seven states. The approximately 40% of persons with chronic joint symptoms who had not been told by a doctor that they had arthritis presumably consists of the large proportion of persons who had not seen a doctor for a diagnosis (*7*), persons who had other chronic rheumatic conditions that were not classified clinically as arthritis (e.g., persons who had bursitis), and persons who used nontraditional medical practitioners that they would not classify as doctors. Because many persons with arthritis diag-

TABLE 1. Estimated numbers of persons affected by and prevalence of chronic joint symptoms*, activity limitation attributable to chronic joint symptoms†, percentage of persons who had chronic joint symptoms who had arthritis diagnosed by a doctor§, and percentage of persons who had arthritis diagnosed by a doctor but did not know their type of arthritis¶ among persons aged ≥18 years, by state — seven states, Behavioral Risk Factor Surveillance System, 1996

State	Chronic joint symptoms			Activity limitation			% persons who had chronic joint symptoms who had arthritis diagnosed by a doctor		% persons who had arthritis diagnosed by a doctor but did not know their type of arthritis	
	Estimated no. (thousands)	Prevalence %	(95% CI**)	Estimated no. (thousands)	Prevalence %	(95% CI)	%	(95% CI)	%	(95% CI)
Arizona	466	15.0	(±2.0)	270	8.7	(±1.5)	60.3	(±6.7)	30.5	(±7.8)
Kansas	352	18.6	(±1.8)	160	8.4	(±1.3)	59.3	(±5.4)	53.3	(±7.3)
Missouri	901	22.7	(±2.4)	390	9.8	(±1.7)	55.9	(±5.6)	52.9	(±7.3)
Montana	126	19.8	(±1.9)	72	11.2	(±1.5)	64.3	(±5.3)	51.0	(±6.8)
New Jersey	742	12.3	(±1.5)	338	5.5	(±0.9)	65.6	(±5.9)	32.6	(±7.4)
Pennsylvania	1424	15.4	(±1.3)	641	6.9	(±0.9)	65.3	(±4.5)	50.2	(±5.5)
Rhode Island	160	20.9	(±2.1)	71	9.3	(±1.5)	55.7	(±5.5)	46.1	(±7.5)

*Persons with chronic joint symptoms were defined as those answering "yes" to two questions: "During the past 12 months, have you had pain, aching, stiffness or swelling in or around a joint?" and "Were these symptoms present on most days for at least one month?" Prevalence was calculated for the 1996 civilian, noninstitutionalized population aged ≥18 years. The unweighted sample and weighted population for the states, respectively, were as follows: Arizona, 1957 and 3,099,918; Kansas, 2008 and 1,896,121; Missouri, 1550 and 3,967,885; Montana, 1803 and 638,449; New Jersey, 2894 and 5,569,056; Pennsylvania, 3595 and 9,248,879; and Rhode Island, 1849 and 765,262.

†Respondents who had chronic joint symptoms and answered "yes" to "Are you now limited in any way in any activities because of joint symptoms?"

§Respondents who had chronic joint symptoms and answered "yes" to "Have you ever been told by a doctor that you have arthritis?"

¶Respondents who had chronic joint symptoms, had arthritis diagnosed by a doctor, and answered the question "What type of arthritis did the doctor say you have?"

**Confidence interval.

TABLE 2. Self-reported prevalence of and activity limitation attributable to chronic joint symptoms*, by selected characteristics — Pennsylvania, Behavioral Risk Factor Surveillance System, 1996

Characteristic	Chronic joint symptoms					Activity limiation† attributable to chronic joint symptoms				
	Estimated persons (thousands)	Unadjusted		Age-sex adjusted		Estimated persons (thousands)	Unadjusted		Age-sex adjusted	
		%	(95% CI§)	%	(95% CI)		%	(95% CI)	%	(95% CI)
Age group (yrs)										
18–24	23	2.2	(±1.6)	—		6	0.6	(±0.7)	—	
25–34	136	7.9	(±2.5)	—		58	3.3	(±1.8)	—	
35–44	208	11.0	(±2.4)	—		100	5.3	(±1.7)	—	
45–54	189	13.2	(±3.2)	—		86	6.0	(±2.3)	—	
55–64	242	21.7	(±4.2)	—		117	10.5	(±3.1)	—	
65–74	419	31.8	(±4.4)	—		172	13.1	(±3.2)	—	
≥75	196	30.6	(±5.7)	—		103	16.1	(±4.7)	—	
18–64	*799*	*11.0*	*(±1.3)*	—		*366*	*5.1*	*(±0.9)*	—	
≥65	*615*	*31.4*	*(±3.5)*	—		*275*	*14.0*	*(±2.6)*	—	
Sex										
Women	861	17.7	(±1.8)	—		417	8.5	(±1.3)	—	
Men	553	12.8	(±1.8)	—		224	5.2	(±1.2)	—	
Race/Ethnicity										
White, non-Hispanic	1319	16.3	(±1.4)	16.1	(±1.4)	588	7.3	(±1.0)	7.2	(±1.0)
Black, non-Hispanic	51	7.6	(±2.9)	8.9	(±3.3)	25	3.7	(±1.9)	4.5	(±2.3)
Hispanic	25	10.2	(±6.5)	12.6	(±6.1)	16	6.3	(±5.6)	7.7	(±5.4)
Other¶	13	7.8	(±8.7)	10.3	(±3.2)	4	2.6	(±3.8)	3.6	(±3.1)
Education (yrs)										
≤8	119	38.0	(±9.7)	23.2	(±7.9)	68	21.7	(±8.0)	16.3	(±7.5)
9–11	170	20.6	(±5.0)	19.0	(±4.9)	111	13.5	(±4.2)	12.7	(±4.1)
12 or equivalent	569	14.8	(±2.0)	14.4	(±1.9)	217	5.6	(±1.2)	5.5	(±1.2)
13–15	285	13.5	(±2.6)	15.3	(±2.8)	137	6.5	(±1.8)	7.2	(±1.9)
≥16	279	13.2	(±2.6)	14.8	(±2.7)	108	5.1	(±1.9)	5.6	(±1.9)

Annual household income										
<$10,000	101	20.3	(±5.7)	19.1	(±5.3)	57	11.4	(±4.2)	10.0	(±3.6)
$10,000–$19,999	290	21.1	(±3.7)	19.6	(±4.9)	151	11.0	(±2.8)	9.9	(±2.9)
$20,000–$34,999	322	12.8	(±2.3)	12.6	(±2.2)	119	4.8	(±1.5)	4.8	(±1.5)
$35,000–$49,999	209	13.8	(±3.3)	17.0	(±4.3)	100	6.6	(±2.5)	8.7	(±3.5)
>$50,000	202	11.4	(±2.7)	14.3	(±3.7)	68	3.9	(±1.5)	5.7	(±3.1)
General health status										
Excellent, Very good, or Good	936	11.9	(±1.3)	12.6	(±1.3)	327	4.1	(±0.8)	4.4	(±0.8)
Fair or Poor	481	36.2	(±4.8)	29.6	(±4.9)	307	23.1	(±4.1)	20.1	(±4.7)
Overweight**										
Yes	551	19.7	(±2.7)	18.6	(±2.3)	263	9.4	(±1.9)	9.0	(±1.8)
No	812	13.5	(±1.5)	13.8	(±1.5)	341	5.7	(±1.0)	5.8	(±1.0)
Leisure-time physical activity										
Inactive	521	21.4	(±2.9)	18.3	(±2.4)	278	11.4	(±2.3)	9.6	(±1.9)
Irregular, not sustained	447	15.1	(±2.3)	15.3	(±2.2)	196	6.7	(±1.5)	6.9	(±1.6)
Regular, not intensive	295	11.0	(±2.0)	12.6	(±2.2)	114	4.2	(±1.3)	4.6	(±1.4)
Regular, intensive	161	13.8	(±3.6)	13.3	(±3.6)	53	4.6	(±2.3)	4.5	(±2.3)
Overall	**1414**	**15.4**	**(±1.3)**	**—**		**641**	**6.9**	**(±0.9)**	**—**	

* Persons who had chronic joint symptoms were defined as those answering "yes" to two questions: "During the past 12 months, have you had pain, aching, stiffness or swelling in or around a joint?" and "Were these symptoms present on most days for at least one month?" Prevalence was calculated for the 1996 civilian, noninstitutionalized population aged ≥18 years. Age-sex adjusted prevalence was standardized to the 1996 Pennsylvania population aged ≥18 years using the age categories in the table. The unweighted sample was 3595; the weighted population was 9,248,879. Numbers and percentages do not always add up because of missing responses and rounding.

† Respondents who had chronic joint symptoms and answered "yes" to "Are you now limited in any way in any activities because of joint symptoms?"

§ Confidence interval.

¶ Differences for races other than whites and blacks were too small for meaningful analysis.

** Overweight was defined as body mass index ≥27.8 for men and ≥27.3 for women.

Chronic Joint Symptoms — Continued

nosed by a doctor did not know their type of arthritis, they may be poorly educated about their disease and missing the documented benefits of self-management (e.g., an approximately 20% reduction in pain and a 40% reduction in the number of doctor visits) (*8*). The proportion of respondents with arthritis diagnosed by a doctor who were currently being treated by a doctor was low given the chronicity of arthritis and the benefits of doctor-based treatment (e.g., medications, physical therapy, and joint replacement surgery). The findings for Pennsylvania indicate much higher rates of chronic joint symptoms among persons with a fair or poor health status and risk behaviors of overweight and physical inactivity, suggesting that these persons are at higher risk for additional adverse health outcomes (e.g., heart disease and diabetes).

The results presented in this report are subject to at least three limitations. First, BRFSS does not survey persons without telephones, persons in the military or institutions, or persons aged ≤18 years. Therefore, the numbers may underestimate the prevalence of chronic joint symptoms. Second, the validity of self-reported chronic joint symptoms is not known. The National Arthritis Data Workgroup has proposed that for self-reported data such as the BRFSS and the redesigned 1996 National Health Interview Survey (NHIS), chronic joint symptoms serve as a new indicator for a true diagnosis of arthritis and other rheumatic conditions. The patterns of chronic joint symptoms by demographic characteristics parallel those seen in analyses of a previous indicator of arthritis and other rheumatic conditions using earlier NHIS data (*3*), suggesting the usefulness of the new indicator. Finally, observed state-specific differences may reflect uncontrolled differences in population composition (e.g., age, sex, and race), socioeconomic status, or occupational and other characteristics.

Additional analyses of these data are planned to examine the relations between chronic joint symptoms, arthritis diagnosed by a doctor, and activity limitations and other BRFSS measures (e.g., health-related quality of life and health promotion/disease prevention behaviors). A public health response to this large and increasing problem requires action at the state level (*9*) to raise public awareness of the impact of chronic joint symptoms and the personal and public health opportunities to reduce the consequences (*8*). The arthritis BRFSS module can be used to gather state-level data directly about persons with chronic joint symptoms. States need direct measures of arthritis prevalence and impact rather than indirect estimates that may not account for variation from potentially confounding demographic, occupational, or other characteristics. Direct state-specific measures can help focus appropriate interventions (*9*) to help meet proposed national health objectives for arthritis for 2010.

State health agencies, arthritis organizations, and other interested groups are drafting the *National Arthritis Action Plan—A Public Health Strategy* under the sponsorship of CDC and the Arthritis Foundation. This publication, planned for release later this year, is intended to provide a comprehensive public health strategy for state health departments, the 60 Arthritis Foundation chapters, and others in the public health community to reduce the arthritis burden in the United States.

References

1. CDC. Prevalence of disabilities and associated health conditions—United States, 1991–1992. MMWR 1994;43:730–1,737–9.
2. Yelin E, Callahan LF. The economic cost and social and psychological impact of musculoskeletal conditions. Arthritis Rheum 1995;38:1351–62.
3. CDC. Arthritis prevalence and activity limitations—United States, 1990. MMWR 1994;43:433–8.

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4. CDC. Prevalence of arthritis—Arizona, Missouri, and Ohio, 1991–1992. MMWR 1994;43:305–9.
5. CDC. Health risks in America: gaining insight from the Behavioral Risk Factor Surveillance System. Revised edition. Atlanta, Georgia: US Department of Health and Human Services, CDC, 1997.
6. Shah BV. SUDAAN user's manual, release 6.0. Research Triangle Park, North Carolina: Research Triangle Institute, 1992.
7. Rao JK, Callahan LF, Helmick CG III. Characteristics of persons with self-reported arthritis and other rheumatic conditions who do not see a doctor. J Rheumatol 1997;24:169–73.
8. Lorig KR, Mazonson PD, Holman HR. Evidence suggesting that health education for self-management in patients with chronic arthritis has sustained health benefits while reducing health care costs. Arthritis Rheum 1993;36:439–46.
9. Institute of Medicine, US Committee for the Study of the Future of Public Health. The future of public health. Washington, DC: National Academy Press, 1988.

Community Needs Assessment and Morbidity Surveillance Following an Ice Storm — Maine, January 1998

On January 7, 1998, an ice storm struck the northeastern United States and southeastern Canada. In Maine, 3 consecutive days of rain combined with ground temperatures consistently below freezing resulted in heavy accumulations of ice on trees and electric power lines. Falling trees and branches and breaking utility poles resulted in the loss of electrical power to an estimated 600,000 persons. Although the rain had stopped by January 11, temperatures declined to <10 F (<–12 C) over most of the state, exacerbating the danger. On January 16, an estimated 50,000 households, primarily in the interior portion of the state, remained without power. This report summarizes a community needs assessment and a study of emergency department (ED) visits conducted during the aftermath of this storm.

Community Needs Assessment

The Maine Bureau of Health (MBH) and CDC developed a community needs survey to assess the continuing needs of and potential health hazards to residents of the state who remained without power. This assessment was conducted on January 17 in the minor civil division of Norway (1995 population: 4738), which was chosen because 1) it was in the interior region of the state, which received the greatest damage to electrical supply lines; 2) it reportedly contained many homes that remained without power; and 3) it contained a representative mixture of town and rural residential tracts. Maps with 1990 census data were used to randomly select 30 census tracts from the 285 within Norway, with the probability of a tract being selected proportional to the number of residential structures contained within it. Road segments were then mapped to the selected census tracts. These segments were assigned to survey teams who attempted to interview residents from four households residing within each of 30 selected census tracts; some teams were unable to contact four households within their census tract.

On January 17, residents from 111 households were interviewed. Electrical power had been restored to 75 (68%) of these households, 20 (18%) were using gasoline-powered generators to supply electricity, and 16 (14%) had no source of electricity. All but one of the surveyed households without restored power were in rural tracts. In all households, drinking water was available from municipal service, private wells, or

Community Needs Assessment — Continued

water-distribution points. All but one of the 111 households had water to flush toilets and access to transportation. Telephone service remained unrestored in 14 (13%) homes. Residents were listening to a radio or television in 103 (93%) households and, therefore, had access to public service broadcasts.

An average of three persons resided in each surveyed household (range: one to nine persons). Of these, 3% were aged <2 years, and 15% were aged ≥65 years. In homes without any source of electricity, 15% of residents were aged ≥65 years, and none were aged <2 years. The following number of households had at least one resident who had experienced the following adverse health events since the ice storm: vomiting or diarrhea (nine [8%]), cough with fever (five [5%]), severe headache with dizziness (four [4%]), burns (four [4%]), severe cuts (two [2%]), and fractures (one [1%]).

Potentially hazardous sources of carbon monoxide (CO) were present in many homes. Among the 36 households without restored electrical power, eight (22%) used a propane heater, and five (14%) used a kerosene heater. Where a gasoline generator was used for electricity, four (20%) households placed it in an open porch or garage and three (15%) households placed it in an enclosed porch or garage. All other generators were placed outside the residential structure. Of households without restored electrical power, three (8%) reported having a working CO detector.

Morbidity Surveillance

To determine the early health impact of the ice storm, MBH and CDC surveyed the EDs of Stephens Memorial Hospital in Norway and Central Maine Medical Center and St. Mary's Regional Medical Center in Lewiston. These EDs were selected because they were in the region of the state most heavily affected by the storm. ED logs were reviewed for January 7–January 18, 1998 (January 17 at St. Mary's). This review also was conducted for January 8–January 19, 1997 (January 18 at St. Mary's), to provide a reference. On the basis of early reports and previous disaster experience, 14 diagnostic categories were selected for tabulation.

The three EDs treated 1758 patients during the 1997 reference period and 2586 during the post-storm period, a 47% increase. The absolute number of visits for each selected diagnostic category and the proportion of the total visits represented by each category were compared between periods (Table 1). Presumptive CO poisonings increased from zero to 101 cases. Most of the injury categories showed absolute increases, but proportional increases occurred only with cold exposure (0–0.3%) and burns (0.4%–0.7%). Visits for lower respiratory tract disease (6.3%–7.4%), and cardiac complaints (4.2%–4.6%) were also proportionally higher during the post-storm period.

The results of these two surveys were reported to MBH. Recommendations included continuation of public education about the hazards of CO and further study into the immediate health effects of the ice storm and subsequent power outage. Community outreach activities by local fire departments, which included CO monitoring, were continued in Norway and other areas of the state. CO warnings also were broadcast over the radio. An investigation into the factors involved with the epidemic of CO poisoning began immediately following the survey. Post-storm surveillance, using final physician diagnosis, has been instituted over a wider geographic area to provide more precise estimates of the storm's health impact.

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TABLE 1. Number and percentage of emergency department diagnoses of conditions of patients reported from three hospitals during reference and post-storm periods, by diagnostic category — Maine, 1997 and 1998

Diagnostic category	Reference period* No.	(%)	Post-storm period† No.	(%)
Injury/Environmental exposure				
Fracture/Dislocation (noncranial)	93	(5.3)	110	(4.3)
Cranial/Intracranial injury	23	(1.3)	26	(1.0)
Eye injury	18	(1.0)	19	(0.7)
Laceration/Puncture	134	(7.6)	134	(5.2)
Musculoskeletal injury (nonfracture)	288	(16.4)	328	(12.7)
Carbon monoxide poisoning	0	(0)	101	(3.9)
Cold exposure	0	(0)	8	(0.3)
Electrical exposure	0	(0)	0	(0)
Burn	7	(0.4)	17	(0.7)
Illness				
Lower respiratory tract	110	(6.3)	191	(7.4)
Cardiac	73	(4.2)	118	(4.6)
Acute gastrointestinal	76	(4.3)	107	(4.1)
Alcohol/Substance abuse	27	(1.5)	42	(1.6)
Mental health	39	(2.2)	40	(1.5)
Total	**1758**		**2586**	

*January 8–19, 1997 (Central Maine Medical Center, Stephens Memorial Hospital), and January 8–18, 1997 (St. Mary's Regional Medical Center).

†January 7–18, 1998 (Central Maine Medical Center, Stephens Memorial Hospital), and January 7–17, 1998 (St. Mary's Regional Medical Center).

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Editorial Note: The community needs assessment used in this investigation was a modification of the rapid needs assessment technique (*1,2*), a methodology that was successfully employed after recent hurricanes (*3–5*) to guide emergency response efforts. This investigation was the first to use U.S. Census data to guide the assessment. The findings in this report demonstrate that, even after an extended period without power, most residents were able to meet their basic needs for water, food, warmth, and sanitation.

Absolute increases in the number of adverse health events reported from EDs after a disaster must be interpreted with caution. Temporary shifting of patients to hospital-based EDs can occur as independent practitioners encounter difficulties resuming normal operations. Therefore, absolute and proportional changes in reported events should be considered when evaluating this data. Most physician's offices in the interior region of Maine lost power. However, because normal operations resumed

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relatively rapidly, provider shifting probably occurred less than would be expected after a flood or hurricane.

The findings of this report indicated that CO exposures and poisonings were the most dramatic health concerns in the early aftermath of the ice storm. Although the use of ED logs is an imprecise method of categorizing many diseases, this survey provided timely information that was useful in efforts to quickly focus the public health response. Both the surveillance and community assessment results prompted the state to continue warnings about CO hazards and to investigate the factors involved in instances of CO poisonings.

CO toxicity has been documented as a health concern following winter storms, especially during power outages (*6–8*). Many of the same mechanisms observed in previous outbreaks of CO poisoning (e.g., improper use of gasoline generators and fuel-powered heaters) may have played a role in Maine. Review of carboxyhemoglobin levels among reported cases and further investigation of the sources of exposure will be needed to completely characterize the Maine outbreak.

Timely, valid information is important in formulating an effective public health response in the aftermath of any disaster. Rapid needs assessment and emergency medical surveillance remain key tools in providing the early estimates needed to guide response efforts. Continued refinements in the methodology of these investigations and dissemination to the local level of the tools and expertise necessary to perform them will contribute to the rapid collection of important information.

References

1. Malilay J, Flanders WD, Brogan D. A modified cluster-sampling method for post-disaster rapid assessment of needs. Bull World Health Organ 1996;74:399–405.
2. Lillibridge SR, Noji EK, Burkle FM Jr. Disaster assessment: the emergency health evaluation of a population affected by a disaster. Ann Emerg Med 1993;22:1715–20.
3. CDC. Rapid health needs assessment following Hurricane Andrew—Florida and Louisiana, 1992. MMWR 1992;41:685–8.
4. Hlady WG, Quenemoen LE, Armenia-Cope RR, et al. Use of a modified cluster sampling method to perform rapid needs assessment after Hurricane Andrew. Ann Emerg Med 1994;23:719–25.
5. CDC. Surveillance for injuries and illnesses and rapid health-needs assessment following hurricanes Marilyn and Opal, September–October 1995. MMWR 1996;45:81–5.
6. Wrenn K, Conners GP. Carbon monoxide poisoning during ice storms: a tale of two cities. J Emerg Med 1997;15:465–7.
7. CDC. Unintentional carbon monoxide poisoning following a winter storm—Washington, January 1993. MMWR 1993;42:109–11.
8. Houck PM, Hampson NB. Epidemic carbon monoxide poisoning following a winter storm. J Emerg Med 1997;15:469–73.

Boat-Propeller–Related Injuries — Texas, 1997

Approximately 78 million persons engage in recreational boating annually in the United States (*1*). Several types of injury can occur during boating recreation, including drowning, falls, burns, and propeller-related injuries. Injuries from the propeller are typically multiple, deep, parallel lacerations that can result in permanent scarring, substantial blood loss, traumatic or surgical amputation, or death (*2*). Persons sustaining injuries from boat propellers can require long periods of hospitalization, recov-

Boat-Propeller–Related Injuries — Continued

ery, and rehabilitation. In Texas, the extent of boat-propeller–related injuries is unknown; however, the existence of approximately 600,000 motorboats in the state exposes many Texans to the potential risk for propeller-related injury. To characterize the occurrence of boat-propeller–related injuries in Texas, the Texas Department of Health (TDH) and the Texas Parks and Wildlife Department (TPWD) investigated boat-propeller–related injuries that occurred in four lakes in Texas during May 24–September 1, 1997, the time of year when boating activities are most common. This report summarizes the results of the investigation.

The investigation established active and hospital-based surveillance near four inland lakes in northern, central, and eastern Texas. Thirteen hospitals near the lakes reported to TDH data about patients treated in the emergency department (ED) or admitted to the hospital for a boat-propeller–related injury. The report form included data about age, sex, injury date, types of injuries, and injury circumstances. Bimonthly contact with sentinel hospitals was maintained by telephone. Additional data were reviewed from TPWD's Boating Accident Reports, TDH's Texas Trauma Registry, and newspaper clippings from across the state.

During the study period, TDH identified 13 persons who sustained boat-propeller–related injuries; three of these persons died.

Case Reports

Case 1. In August 1997, a 36-year-old man was operating a motorboat when it turned sharply and ejected him. The boat ran over him, and the propeller cut his head and back. He surfaced and called for help before submerging again. He was not wearing a personal flotation device. The cause of death was open skull fracture.

Cases 2 and 3. In August 1997, a 12-year-old boy and an 11-year-old girl were passengers on a pontoon boat during a family outing. The two children were dangling their feet over the front end of the boat when the front gate gave way and they fell in the water. The boat ran over the children, and the propeller struck the children. Both children drowned. They were not wearing personal flotation devices.

Summary of Cases

By month, most cases occurred in August (six), followed by June (three), July (three), and May (one). Of the 13 persons identified, nine were males. The mean age was 26 years (range: 6–44 years). Of the 10 nonfatal cases, seven persons sustained lacerations, and four sustained broken bones. The most common circumstances surrounding boat-propeller–related injuries were 1) getting into or out of the boat (five persons), 2) participating in a water activity (e.g., personal watercraft use or skiing) (four), and 3) falling or being thrown from the boat (four).

Five of the injured persons were admitted to the hospital. Hospital information was available for four of these five. The length of hospital stay ranged from 4 to 8 days. Three persons were discharged in good condition, with full recovery expected, and one patient was discharged in a wheelchair and referred for physical therapy and orthopedic surgery follow-up.

Reported by: K Leeper, Columbia Medical Center, Lewisville; J Willeford, Denton Community Hospital, S Conn, Denton Regional Medical Center, Denton; M Hoff, Trinity Medical Center, Brenham; S Amick, Harris Methodist Medical Center, Fort Worth; B Parsons, Palo Pinto General Hospital, Palo Pinto; J Buckley, Graham General Hospital, Graham; J Hazelwood, Columbia Medical Center, Conroe; E Victery, Huntsville Memorial Hospital, Huntsville; J Landers, Llano Memorial Hospital, Llano; B Shafer, Highland Lakes Medical Center, Burnet; S Janda, C Perez, Brackenridge Hospital, Austin; M Rast, D Cherry, J Hunteman, T Sajak, J Whitfield, E Svenkerud,

Boat-Propeller–Related Injuries — Continued

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Editorial Note: In 1996, the U.S. Coast Guard reported that 4442 persons were injured and 709 persons died in boating-related incidents in the United States; five (0.7%) of these deaths involved propeller injuries (*3*). A total of 171 persons were injured in incidents involving a propeller strike (*4*). In previous case reports, fatality rates ranged from 15% in a series of 77 cases to 23% in 223 cases (*5,6*).

In an analytic study of boat-propeller–related injuries that used national, medically verified data, boat propellers were responsible for an estimated 1155 injuries during September 1991–August 1992 (*2*). Of these, only 11.5% of injuries required hospitalization. In this report, 50% of the nonfatally injured persons were admitted to the hospital. Because the survey did not include all lakes and waterfronts in Texas, this report probably underestimates the number of boat-propeller–related injuries and deaths.

Most boat-propeller–related injuries result from operator error, and many of them are preventable (*3*). To prevent injuries that occur through contact with boat propellers, the U.S. Coast Guard recommends that boat operators

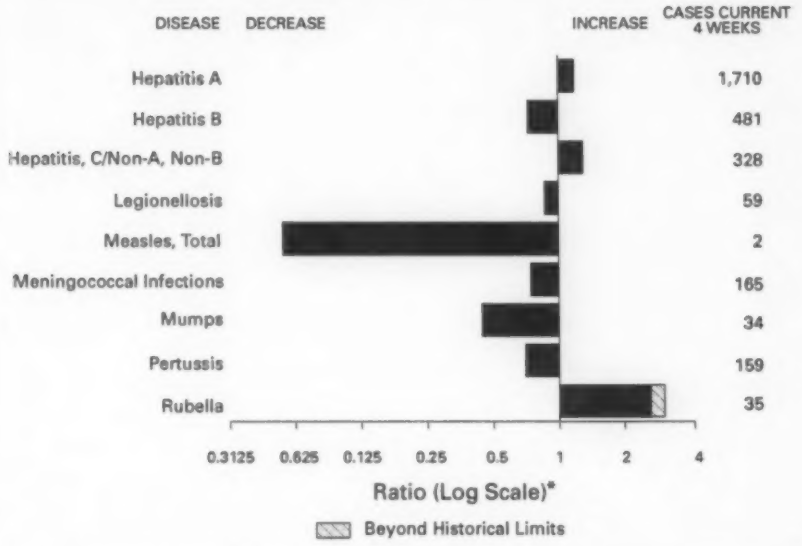
- ensure that every passenger is wearing a personal flotation device.
- never operate a boat while under the influence of alcohol or drugs.
- keep the boat clear of marked swimming and diving areas and become familiar with the red and white or blue and white diagonally striped flags signaling that divers are in the area.
- ensure that passengers are properly seated before getting underway.
- never start a boat with the engine in gear.
- designate a passenger who will keep water skier(s) in sight at all times.
- never allow passengers to ride on a seat back, gunwale, or on the transom or bow.

The findings in this report indicate that severe boat-propeller–related injuries may be more common than previously reported, underscoring the need to continue efforts to increase public awareness of safety measures and to improve surveillance for such injuries. Additional recommendations and information about boating safety is available from the Office of Boating Safety, U.S. Coast Guard Infoline; telephone (800) 368-5647, 8 a.m.–4:30 p.m., or the Office of Boating Safety's World-Wide Web site, www.uscgboating.org.

References

1. National Marine Manufacturers Association. Boating 1997. Chicago, Illinois: National Marine Manufacturers Association, 1997.
2. Branche-Dorsey CM, Smith SM, Johnson D. A study of boat and boat propeller-related injuries in the United States, 1991–1992. Washington, DC: US Department of Transportation, US Coast Guard, 1993 (report no. CG-D-12-93).
3. US Coast Guard. Boating statistics 1996. Washington, DC: US Department of Transportation, US Coast Guard, 1998 (report no. COMDTPUB P16754.10).
4. US Coast Guard. Recreational Boating Accident Report Database. Washington, DC: US Department of Transportation, US Coast Guard, 1997.
5. Kutarski PW. Outboard motor propeller injuries. Injury 1989;20:87–91.
6. Vernick JS, Baker SP, Edmunds L, et al. Motorboat propeller injuries. Baltimore, Maryland: The Johns Hopkins University Injury Prevention Center and the Institute for Injury Reduction, 1992.

FIGURE I. Selected notifiable disease reports, comparison of provisional 4-week totals ending May 2, 1998, with historical data — United States



*Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

TABLE I. Summary — provisional cases of selected notifiable diseases, United States, cumulative, week ending May 2, 1998 (17th Week)

	Cum. 1998		Cum. 1998
Anthrax	-	Plague	-
Brucellosis	7	Poliomyelitis, paralytic[¶]	-
Cholera	-	Psittacosis	13
Congenital rubella syndrome	1	Rabies, human	-
Cryptosporidiosis*	578	Rocky Mountain spotted fever (RMSF)	21
Diphtheria	-	Streptococcal disease, invasive Group A	804
Encephalitis: California*	-	Streptococcal toxic-shock syndrome*	23
eastern equine*	-	Syphilis, congenital**	50
St. Louis*	-	Tetanus	5
western equine*	-	Toxic-shock syndrome	49
Hansen Disease	42	Trichinosis	2
Hantavirus pulmonary syndrome*†	2	Typhoid fever	96
Hemolytic uremic syndrome, post-diarrheal*	6	Yellow fever	-
HIV infection, pediatric*§	88		

-:no reported cases
*Not notifiable in all states.
† Updated weekly from reports to the Division of Viral and Rickettsial Diseases, National Center for Infectious Diseases (NCID).
§ Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention (NCHSTP), last update April 26, 1998.
¶ One suspected case of polio with onset in 1998 has also been reported to date.
**Updated from reports to the Division of STD Prevention, NCHSTP.

TABLE II. Provisional cases of selected notifiable diseases, United States, weeks ending May 2, 1998, and April 26, 1997 (17th Week)

Reporting Area	AIDS		Chlamydia		*Escherichia coli* O157:H7		Gonorrhea		Hepatitis C/NA,NB	
					NETSS†	PHLIS§				
	Cum. 1998*	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1998	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997
UNITED STATES	16,097	19,000	165,660	150,148	261	125	97,984	91,257	1,431	888
NEW ENGLAND	489	587	6,185	5,696	31	16	1,614	1,959	16	25
Maine	10	16	301	315	1	-	14	14	-	-
N.H.	14	8	304	253	5	2	30	47	-	2
Vt.	10	16	123	132	-	-	8	16	-	1
Mass.	211	217	2,822	2,336	15	12	683	749	16	20
R.I.	40	45	816	688	3	1	112	175	-	2
Conn.	204	283	1,819	1,970	7	1	767	958	-	-
MID. ATLANTIC	4,607	6,392	20,695	18,300	21	6	11,553	11,568	117	92
Upstate N.Y.	545	1,115	N	N	16	-	1,833	1,971	101	71
N.Y. City	2,631	3,137	11,613	9,934	-	4	5,083	4,666	-	-
N.J.	823	1,351	2,549	3,402	5	2	1,754	2,354	-	-
Pa.	608	789	6,533	4,964	N	-	2,883	2,577	16	21
E.N. CENTRAL	1,299	1,345	31,018	23,554	46	14	20,537	13,962	151	217
Ohio	242	267	7,078	7,294	16	3	4,360	4,513	5	5
Ind.	275	283	2,706	2,812	6	3	1,769	1,945	3	5
Ill.	495	378	11,673	3,688	13	-	8,204	1,857	7	31
Mich.	218	346	7,213	6,275	11	4	5,346	4,207	136	162
Wis.	69	71	2,348	3,485	N	4	858	1,440	-	14
W.N. CENTRAL	288	396	9,677	10,288	30	24	4,575	4,509	96	22
Minn.	50	54	1,521	2,456	12	12	526	845	-	-
Iowa	14	51	1,389	1,558	2	-	408	402	9	11
Mo.	139	208	3,907	3,750	6	11	2,670	2,463	84	3
N. Dak.	4	3	290	303	1	1	29	22	-	2
S. Dak.	7	2	555	361	-	-	93	37	-	-
Nebr.	32	28	872	668	4	-	327	251	1	1
Kans.	42	50	1,143	1,172	5	-	522	489	2	5
S. ATLANTIC	4,121	4,482	34,550	27,856	25	10	28,139	27,019	51	70
Del.	44	69	841	612	-	1	453	351	-	-
Md.	488	562	2,693	2,245	9	4	2,943	4,143	3	6
D.C.	343	305	N	N	-	-	1,132	1,367	-	-
Va.	284	327	3,084	3,829	III	5	2,128	2,788	1	7
W. Va.	36	27	830	1,041	N	-	226	320	3	3
N.C.	273	279	7,366	5,670	7	-	6,292	5,397	7	20
S.C.	283	236	6,184	3,964	1	-	3,995	3,465	-	16
Ga.	501	534	8,027	2,527	2	-	6,666	3,586	8	-
Fla.	1,889	2,143	5,525	7,968	6	-	4,304	5,602	29	18
E.S. CENTRAL	591	580	11,853	10,970	19	6	11,285	11,018	42	116
Ky.	87	49	2,002	2,147	5	-	1,134	1,447	7	5
Tenn.	184	246	3,798	4,048	10	6	3,210	3,439	32	66
Ala.	183	153	3,322	2,654	4	-	4,168	3,601	3	5
Miss.	137	112	2,731	2,121	-	-	2,773	2,531	-	40
W.S. CENTRAL	1,953	2,038	21,007	19,377	12	2	12,355	12,576	431	77
Ark.	71	83	1,148	876	1	1	1,094	1,493	-	1
La.	333	403	3,801	2,304	-	-	3,195	2,092	1	56
Okla.	106	116	3,316	2,456	1	1	1,822	1,569	-	4
Tex.	1,443	1,436	12,742	13,741	10	-	6,244	7,422	430	16
MOUNTAIN	526	555	6,197	8,226	23	15	2,296	2,513	265	105
Mont.	13	16	352	300	1	-	20	14	4	4
Idaho	12	17	624	504	2	-	51	34	79	15
Wyo.	2	11	222	168	1	-	11	20	115	38
Colo.	91	170	-	1,424	3	2	792	666	10	14
N. Mex.	76	35	1,117	1,227	5	4	201	436	28	19
Ariz.	200	123	3,113	3,166	N	5	1,078	1,017	1	10
Utah	45	39	516	473	7	1	51	54	16	2
Nev.	87	144	253	964	4	3	92	272	12	3
PACIFIC	2,223	2,645	24,478	25,901	54	32	5,630	6,133	262	164
Wash.	185	238	3,628	2,993	14	11	613	665	8	8
Oreg.	64	97	1,858	1,520	15	15	261	236	2	2
Calif.	1,947	2,268	17,732	20,381	25	3	4,531	4,931	217	101
Alaska	11	18	624	471	-	-	96	152	1	-
Hawaii	36	24	636	536	N	3	129	149	34	53
Guam	-	2	8	143	N	-	2	18	-	-
P.R.	666	419	U	U	-	U	130	201	-	29
V.I.	15	16	N	N	N	U	-	-	-	-
Amer. Samoa	-	-	-	-	N	U	-	-	-	-
C.N.M.I.	-	-	N	N	N	U	7	11	-	2

N: Not notifiable U: Unavailable -: no reported cases C.N.M.I.: Commonwealth of Northern Mariana Islands

*Updated monthly to the Division of HIV/AIDS Prevention–Surveillance and Epidemiology, National Center for HIV, STD, and TB Prevention, last update April 26, 1998.

†National Electronic Telecommunications System for Surveillance.

§Public Health Laboratory Information System.

TABLE II. (Cont'd.) Provisional cases of selected notifiable diseases, United States, weeks ending May 2, 1998, and April 26, 1997 (17th Week)

Reporting Area	Legionellosis		Lyme Disease		Malaria		Syphilis (Primary & Secondary)		Tuberculosis		Rabies, Animal
	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998*	Cum. 1997	Cum. 1998
UNITED STATES	333	272	1,110	986	334	411	2,235	2,880	1,831	4,937	2,222
NEW ENGLAND	19	21	211	180	16	15	25	53	81	120	435
Maine	1	1	-	3	1	-	1	-	U	11	72
N.H.	2	3	5	4	2	2	1	-	2	1	33
Vt.	1	3	2	2	-	1	1	-	1	-	24
Mass.	5	9	61	36	11	11	19	27	64	61	131
R.I.	4	1	24	32	2	1	-	-	14	7	30
Conn.	6	4	119	103	-	-	3	26	U	40	145
MID. ATLANTIC	69	45	697	654	90	111	78	137	162	881	499
Upstate N.Y.	23	11	401	78	26	19	4	15	U	107	344
N.Y. City	8	2	-	49	41	64	18	25	U	490	U
N.J.	3	5	53	159	14	18	18	67	162	188	64
Pa.	35	27	243	368	9	10	38	30	U	96	91
E.N. CENTRAL	111	112	23	12	24	40	333	248	136	476	15
Ohio	52	54	22	5	2	3	54	85	5	104	15
Ind.	16	15	1	4	1	4	54	54	U	41	-
Ill.	12	5	-	1	6	17	155	19	131	220	-
Mich.	23	28	-	2	14	13	52	35	U	77	-
Wis.	8	10	U	U	1	3	18	55	U	34	-
W.N. CENTRAL	25	19	10	9	20	9	53	69	59	148	198
Minn.	3	1	3	7	8	4	-	18	U	42	30
Iowa	2	2	6	-	2	2	-	3	U	15	41
Mo.	9	2	-	1	7	2	43	32	52	56	12
N. Dak.	-	1	-	-	1	-	-	-	U	2	42
S. Dak.	-	1	-	-	-	-	-	-	4	2	33
Nebr.	8	8	-	1	-	1	4	-	3	4	-
Kans.	3	4	1	-	2	-	6	16	U	27	40
S. ATLANTIC	45	34	116	94	82	78	949	1,149	315	859	740
Del.	6	5	-	18	1	2	9	8	-	9	17
Md.	9	10	92	63	29	25	213	332	80	87	178
D.C.	3	1	4	4	4	5	30	42	37	24	-
Va.	4	4	4	-	9	19	66	97	53	111	214
W. Va.	N	N	4	-	-	-	-	3	19	17	32
N.C.	4	5	1	2	7	5	269	234	126	112	136
S.C.	4	2	-	1	3	5	116	128	U	87	44
Ga.	-	-	2	1	13	11	171	206	U	144	45
Fla.	15	7	9	5	16	6	75	99	U	268	74
E.S. CENTRAL	7	9	14	18	9	12	365	619	-	382	88
Ky.	4	-	2	1	1	3	41	56	U	56	14
Tenn.	3	3	7	4	5	3	183	253	U	131	55
Ala.	-	2	5	2	3	3	80	158	U	124	19
Miss.	-	4	-	11	-	3	61	152	U	71	-
W.S. CENTRAL	4	1	3	2	9	6	247	431	38	725	65
Ark.	-	-	2	-	-	1	46	55	38	63	1
La.	-	-	-	1	3	3	98	137	-	39	-
Okla.	1	1	-	-	1	2	14	41	U	55	64
Tex.	3	-	1	1	5	-	89	198	U	568	-
MOUNTAIN	20	16	1	2	16	23	69	55	89	137	48
Mont.	1	1	-	-	-	2	-	-	2	2	16
Idaho	-	1	-	-	1	-	-	-	3	4	-
Wyo.	1	1	-	-	-	1	-	-	1	1	29
Colo.	4	4	-	-	6	10	4	2	U	27	-
N. Mex.	2	-	-	-	6	4	-	-	7	6	-
Ariz.	3	4	-	1	2	3	50	45	57	65	3
Utah	8	4	-	-	1	-	3	2	19	4	-
Nev.	1	1	1	1	-	3	2	6	U	28	-
PACIFIC	33	15	35	15	68	117	116	119	951	1,209	134
Wash.	3	3	1	-	6	4	6	5	U	99	-
Oreg.	-	-	3	7	7	7	2	3	U	42	-
Calif.	30	11	31	8	54	104	106	110	886	963	121
Alaska	-	-	-	-	-	2	-	-	12	31	13
Hawaii	-	1	-	-	1	-	-	1	53	74	-
Guam	-	-	-	-	-	-	-	3	-	13	-
P.R.	-	-	-	-	-	3	74	71	-	-	23
V.I.	-	-	-	-	-	-	-	-	-	-	-
Amer. Samoa	-	-	-	-	-	-	-	-	-	-	-
C.N.M.I.	-	-	-	-	-	-	1	4	8	-	-

N: Not notifiable U: Unavailable -: no reported cases

*Additional information about areas displaying "U" for cumulative 1998 Tuberculosis cases can be found in Notice to Readers, *MMWR* Vol. 47, No. 2, p. 39.

TABLE III. Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending May 2, 1998, and April 26, 1997 (17th Week)

Reporting Area	*H. influenzae*, invasive		Hepatitis (Viral), by type				Measles (Rubeola)					
			A		B		Indigenous		Imported†		Total	
	Cum. 1998*	Cum. 1997	Cum. 1998	Cum. 1997	Cum. 1998	Cum. 1997	1998	Cum. 1998	1998	Cum. 1998	Cum. 1998	Cum. 1997
UNITED STATES	372	394	6,600	8,678	2,362	2,851	-	3	-	10	13	33
NEW ENGLAND	20	22	94	215	25	62	-	-	-	1	1	-
Maine	2	2	10	22	-	3	-	-	-	-	-	-
N.H.	1	3	6	10	5	5	-	-	-	-	-	-
Vt.	2	-	7	5	-	1	-	-	-	-	-	-
Mass.	13	15	21	113	11	32	-	-	-	1	1	-
R.I.	2	1	7	15	9	6	-	-	-	-	-	-
Conn.	-	1	43	50	-	15	-	-	-	-	-	-
MID. ATLANTIC	51	49	405	789	347	443	-	-	-	1	1	11
Upstate N.Y.	18	2	118	88	104	70	-	-	-	-	-	4
N.Y. City	10	18	110	380	86	184	-	-	-	-	-	5
N.J.	21	18	84	127	60	86	-	-	-	-	-	1
Pa.	2	11	93	194	97	103	-	-	-	1	1	1
E.N. CENTRAL	53	62	805	1,110	240	559	-	-	-	2	2	6
Ohio	27	31	122	153	26	33	-	-	-	-	-	-
Ind.	9	5	66	100	20	38	U	-	U	1	1	-
Ill.	16	17	123	282	38	110	-	-	-	-	-	5
Mich.	-	9	445	502	150	175	-	-	-	1	1	1
Wis.	1	-	49	73	6	203	-	-	-	-	-	-
W.N. CENTRAL	29	22	611	620	110	185	-	-	-	-	-	2
Minn.	17	13	28	47	11	9	-	-	-	-	-	1
Iowa	1	2	292	78	16	11	-	-	-	-	-	-
Mo.	7	3	232	356	66	143	-	-	-	-	-	1
N. Dak.	-	-	2	6	2	1	-	-	-	-	-	-
S. Dak.	-	2	3	6	1	-	-	-	-	-	-	-
Nebr.	-	1	13	22	4	7	-	-	-	-	-	-
Kans.	4	1	41	105	10	14	-	-	-	-	-	-
S. ATLANTIC	84	73	594	455	347	360	-	1	-	5	6	2
Del.	-	-	1	10	-	2	-	-	-	1	1	-
Md.	21	28	125	110	45	62	-	-	-	1	1	1
D.C.	-	-	23	13	6	18	-	-	-	-	-	1
Va.	11	5	91	58	32	38	-	-	-	2	2	-
W. Va.	2	2	-	5	2	6	-	-	-	-	-	-
N.C.	10	12	33	65	77	73	-	-	-	-	-	-
S.C.	1	3	12	38	-	36	-	-	-	-	-	-
Ga.	18	16	116	43	59	38	-	-	-	1	1	-
Fla.	21	7	193	113	126	87	-	1	-	-	1	-
E.S. CENTRAL	20	22	123	224	147	206	-	-	-	-	-	1
Ky.	3	4	5	28	11	12	-	-	-	-	-	-
Tenn.	12	12	86	129	111	129	-	-	-	-	-	-
Ala.	5	6	32	37	25	28	-	-	-	-	-	1
Miss.	-	-	-	30	-	37	U	-	U	-	-	-
W.S. CENTRAL	23	18	1,051	1,254	334	173	-	-	-	-	-	2
Ark.	-	1	17	86	21	19	-	-	-	-	-	-
La.	11	2	12	70	8	40	-	-	-	-	-	-
Okla.	11	13	180	560	16	9	-	-	-	-	-	2
Tex.	1	2	842	538	289	105	-	-	-	-	-	-
MOUNTAIN	55	41	1,124	1,377	282	292	-	-	-	-	-	-
Mont.	-	-	16	39	3	3	-	-	-	-	-	-
Idaho	-	-	85	62	13	8	-	-	-	-	-	-
Wyo.	-	1	21	15	7	8	-	-	-	-	-	-
Colo.	11	5	87	163	35	58	-	-	-	-	-	-
N. Mex.	3	2	70	96	111	101	-	-	-	-	-	-
Ariz.	31	12	712	620	68	60	-	-	-	-	-	-
Utah	4	3	70	267	23	36	-	-	-	-	-	-
Nev.	6	18	63	115	22	18	-	-	-	-	-	-
PACIFIC	37	85	1,793	2,634	530	571	-	2	-	1	3	9
Wash.	1	1	338	186	42	18	-	-	-	-	-	-
Oreg.	23	16	134	132	44	40	-	-	-	-	-	-
Calif.	10	65	1,299	2,246	437	499	-	2	-	1	3	6
Alaska	1	1	3	15	2	10	-	-	-	-	-	-
Hawaii	2	2	19	55	5	4	-	-	-	-	-	3
Guam	-	-	-	-	-	1	U	-	U	-	-	-
P.R.	2	-	12	115	208	405	-	-	-	-	-	-
V.I.	-	-	-	-	-	-	U	-	U	-	-	-
Amer. Samoa	-	-	-	-	-	-	U	-	U	-	-	-
C.N.M.I.	-	4	-	1	7	19	U	-	U	-	-	1

N: Not notifiable U: Unavailable - : no reported cases

*Of 89 cases among children aged <5 years, serotype was reported for 46 and of those, 23 were type b.

†For imported measles, cases include only those resulting from importation from other countries.

TABLE III. (Cont'd.) Provisional cases of selected notifiable diseases preventable by vaccination, United States, weeks ending May 2, 1998, and April 26, 1997 (17th Week)

Reporting Area	Meningococcal Disease		Mumps			Pertussis			Rubella		
	Cum. 1998	Cum. 1997	1998	Cum. 1998	Cum. 1997	1998	Cum. 1998	Cum. 1997	1998	Cum. 1998	Cum. 1997
UNITED STATES	1,026	1,403	4	153	204	40	1,204	1,770	2	161	21
NEW ENGLAND	54	87	-	-	7	-	207	430	-	24	-
Maine	4	8	-	-	-	-	5	6	-	-	-
N.H.	1	9	-	-	-	-	19	48	-	-	-
Vt.	1	2	-	-	-	-	22	145	-	-	-
Mass.	26	50	-	-	2	-	156	214	-	2	-
R.I.	3	4	-	-	4	-	-	12	-	-	-
Conn.	19	14	-	-	1	-	5	5	-	22	-
MID. ATLANTIC	111	137	-	6	27	3	148	149	-	79	8
Upstate N.Y.	28	30	-	3	4	3	91	56	-	79	1
N.Y. City	12	23	-	-	1	-	-	37	-	-	7
N.J.	32	27	-	-	4	-	-	9	-	-	-
Pa.	39	57	-	3	18	-	57	47	-	-	-
E.N. CENTRAL	141	205	-	22	29	8	137	188	-	-	3
Ohio	58	75	-	11	8	4	53	55	-	-	-
Ind.	25	22	U	2	4	U	40	19	U	-	-
Ill.	29	68	-	1	9	3	10	25	-	-	-
Mich.	14	19	-	8	7	1	17	26	-	-	-
Wis.	15	21	-	-	1	-	17	63	-	-	3
W.N. CENTRAL	91	106	-	16	7	3	90	97	-	1	-
Minn.	16	14	-	9	3	3	58	59	-	-	-
Iowa	13	22	-	5	3	-	16	7	-	-	-
Mo.	37	53	-	1	-	-	9	14	-	1	-
N. Dak.	-	-	-	1	-	-	-	2	-	-	-
S. Dak.	5	3	-	-	-	-	4	1	-	-	-
Nebr.	4	4	-	-	1	-	3	2	-	-	-
Kans.	16	10	-	-	-	-	-	12	-	-	-
S. ATLANTIC	188	241	3	28	26	4	95	159	1	5	1
Del.	1	4	-	-	-	-	-	-	-	-	-
Md.	16	26	-	-	4	-	18	65	-	-	-
D.C.	-	5	-	-	-	-	1	2	-	-	-
Va.	18	22	-	4	2	-	6	17	-	-	1
W. Va.	4	9	-	-	-	-	1	3	-	-	-
N.C.	24	40	-	6	6	-	40	34	-	3	-
S.C.	31	33	-	3	4	1	10	8	-	1	-
Ga.	40	44	1	1	2	1	1	2	-	-	-
Fla.	54	58	2	14	8	2	18	28	1	1	-
E.S. CENTRAL	74	96	-	-	11	1	33	37	-	-	-
Ky.	12	24	-	-	-	-	15	10	-	-	-
Tenn.	32	30	-	-	3	1	8	12	-	-	-
Ala.	30	27	-	-	4	-	10	9	-	-	-
Miss.	-	15	U	-	4	U	-	6	U	-	-
W.S. CENTRAL	75	114	-	22	24	6	62	35	-	37	1
Ark.	14	21	-	-	-	1	8	2	-	-	-
La.	22	28	-	1	6	-	-	7	-	-	-
Okla.	21	13	-	-	-	-	6	5	-	-	-
Tex.	18	52	-	21	18	5	48	21	-	37	1
MOUNTAIN	67	85	1	14	10	10	276	421	-	5	-
Mont.	2	4	-	-	-	-	1	2	-	-	-
Idaho	3	5	1	1	2	5	129	288	-	-	-
Wyo.	3	-	-	1	1	-	7	3	-	-	-
Colo.	16	26	-	2	2	-	43	102	-	-	-
N. Mex.	12	15	N	N	N	5	54	12	-	1	-
Ariz.	22	16	-	4	-	-	22	9	-	1	-
Utah	6	10	-	1	2	-	13	1	-	2	-
Nev.	3	9	-	5	3	-	7	4	-	1	-
PACIFIC	225	332	-	45	63	5	156	254	1	10	8
Wash.	26	36	-	4	5	5	86	117	1	8	-
Oreg.	44	68	N	N	N	-	8	9	-	-	-
Calif.	150	225	-	28	45	-	58	122	-	1	4
Alaska	1	1	-	2	3	-	-	2	-	-	-
Hawaii	4	2	-	11	10	-	4	4	-	1	4
Guam	-	1	U	-	1	U	-	-	U	-	-
P.R.	1	6	-	2	4	-	2	-	-	-	-
V.I.	-	-	U	-	-	U	-	-	U	-	-
Amer. Samoa	-	-	U	-	-	U	-	-	U	-	-
C.N.M.I.	-	-	U	-	1	U	-	-	U	-	-

N: Not notifiable U: Unavailable -: no reported cases

TABLE IV. Deaths in 122 U.S. cities,* week ending May 2, 1998 (17th Week)

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
NEW ENGLAND	547	397	102	36	6	6	41
Boston, Mass.	154	104	39	10	1	-	19
Bridgeport, Conn.	46	36	3	7	-	-	1
Cambridge, Mass.	11	11	-	-	-	-	2
Fall River, Mass.	22	18	3	1	-	-	3
Hartford, Conn.	57	42	10	3	2	-	1
Lowell, Mass.	19	14	4	1	-	-	1
Lynn, Mass.	17	14	2	1	-	-	-
New Bedford, Mass.	29	22	2	4	1	-	-
New Haven, Conn.	40	29	4	2	1	4	3
Providence, R.I.	36	23	9	4	-	-	2
Somerville, Mass.	6	6	-	-	-	-	-
Springfield, Mass.	29	18	9	2	-	-	2
Waterbury, Conn.	26	18	6	-	1	1	1
Worcester, Mass.	55	42	11	1	-	1	6
MID. ATLANTIC	2,157	1,477	432	169	40	39	110
Albany, N.Y.	45	30	8	4	-	3	3
Allentown, Pa.	21	20	1	-	-	-	-
Buffalo, N.Y.	74	57	12	3	2	-	6
Camden, N.J.	29	17	3	3	3	3	2
Elizabeth, N.J.	22	19	1	2	-	-	-
Erie, Pa.	30	25	3	1	-	1	3
Jersey City, N.J.	42	32	8	2	-	-	3
New York City, N.Y.	1,081	732	230	84	16	19	45
Newark, N.J.	37	9	16	6	3	3	2
Paterson, N.J.	38	20	11	5	1	1	-
Philadelphia, Pa.	335	219	72	30	13	1	16
Pittsburgh, Pa.§	86	57	20	7	-	2	4
Reading, Pa.	26	23	1	2	-	-	4
Rochester, N.Y.	118	89	16	8	2	3	13
Schenectady, N.Y.	24	21	2	1	-	-	2
Scranton, Pa.	27	23	3	1	-	-	-
Syracuse, N.Y.	78	56	17	3	-	3	6
Trenton, N.J.	26	16	4	6	-	-	1
Utica, N.Y.	18	13	4	1	-	-	-
Yonkers, N.Y.	U	U	U	U	U	U	U
E.N. CENTRAL	2,014	1,383	375	158	49	49	111
Akron, Ohio	45	29	8	5	2	1	1
Canton, Ohio	30	25	3	2	-	-	3
Chicago, Ill.	454	287	92	54	13	8	39
Cincinnati, Ohio	95	64	21	3	3	4	8
Cleveland, Ohio	139	83	31	14	5	6	-
Columbus, Ohio	186	128	37	12	1	8	21
Dayton, Ohio	130	95	23	3	5	4	4
Detroit, Mich.	196	126	44	19	4	3	4
Evansville, Ind.	49	33	12	4	-	-	3
Fort Wayne, Ind.	59	45	7	3	2	2	6
Gary, Ind.	12	7	1	1	2	1	-
Grand Rapids, Mich.	51	41	6	1	1	2	2
Indianapolis, Ind.	191	134	36	15	3	3	-
Lansing, Mich.	36	27	4	2	3	-	3
Milwaukee, Wis.	129	100	22	5	-	2	5
Peoria, Ill.	44	34	6	3	-	1	5
Rockford, Ill.	49	41	6	1	1	-	1
South Bend, Ind.	46	31	9	3	1	2	2
Toledo, Ohio	U	U	U	U	U	U	U
Youngstown, Ohio	73	53	7	8	3	2	4
W.N. CENTRAL	815	580	133	47	16	23	71
Des Moines, Iowa	U	U	U	U	U	U	U
Duluth, Minn.	29	27	1	-	-	1	4
Kansas City, Kans.	38	23	8	2	5	-	-
Kansas City, Mo.	147	95	24	8	2	2	7
Lincoln, Nebr.	43	29	7	3	2	2	2
Minneapolis, Minn.	186	136	36	10	1	3	24
Omaha, Nebr.	92	67	11	6	1	7	4
St. Louis, Mo.	90	69	13	4	-	4	14
St. Paul, Minn.	79	63	10	3	3	-	12
Wichita, Kans.	111	71	23	11	2	4	4

Reporting Area	All Causes, By Age (Years)						P&I† Total
	All Ages	>65	45-64	25-44	1-24	<1	
S. ATLANTIC	1,130	722	245	107	30	23	79
Atlanta, Ga.	U	U	U	U	U	U	U
Baltimore, Md.	190	105	43	32	4	4	17
Charlotte, N.C.	102	72	16	8	3	3	11
Jacksonville, Fla.	135	90	28	12	3	2	5
Miami, Fla.	114	72	28	8	5	1	-
Norfolk, Va.	53	31	9	8	1	4	1
Richmond, Va.	70	51	14	2	2	1	2
Savannah, Ga.	38	22	11	2	2	1	3
St. Petersburg, Fla.	98	73	16	4	2	3	11
Tampa, Fla.	157	111	32	10	3	1	22
Washington, D.C.	150	92	42	18	5	3	7
Wilmington, Del.	13	3	6	3	-	-	-
E.S. CENTRAL	912	577	183	89	36	25	45
Birmingham, Ala.	212	145	47	13	3	2	9
Chattanooga, Tenn.	73	54	9	5	2	3	4
Knoxville, Tenn.	85	61	19	5	-	-	11
Lexington, Ky.	55	33	14	6	-	2	6
Memphis, Tenn.	176	117	29	13	10	7	6
Mobile, Ala.	109	67	29	7	2	4	-
Montgomery, Ala.	49	35	7	4	3	-	5
Nashville, Tenn.	153	65	29	36	16	7	4
W.S. CENTRAL	1,506	983	311	120	60	32	112
Austin, Tex.	71	45	15	7	2	2	4
Baton Rouge, La.	40	27	9	4	-	-	1
Corpus Christi, Tex.	67	49	10	7	1	-	4
Dallas, Tex.	161	92	49	13	5	2	2
El Paso, Tex.	92	60	18	11	-	3	11
Ft. Worth, Tex.	108	82	16	8	2	-	16
Houston, Tex.	321	192	80	29	12	8	32
Little Rock, Ark.	80	54	14	4	3	5	5
New Orleans, La.	116	64	20	12	18	2	-
San Antonio, Tex.	270	189	52	14	12	3	21
Shreveport, La.	54	36	12	4	1	1	4
Tulsa, Okla.	126	93	16	7	4	6	12
MOUNTAIN	917	625	161	83	31	16	62
Albuquerque, N.M.	157	99	33	19	6	-	4
Boise, Idaho	26	21	3	1	-	1	1
Colo. Springs, Colo.	52	35	6	5	4	2	6
Denver, Colo.	105	64	20	14	5	2	8
Las Vegas, Nev.	233	155	50	20	6	2	13
Ogden, Utah	24	19	4	1	-	-	4
Phoenix, Ariz.	76	54	11	7	3	-	3
Pueblo, Colo.	11	9	2	-	-	-	-
Salt Lake City, Utah	101	73	13	8	2	5	11
Tucson, Ariz.	132	96	19	8	5	4	12
PACIFIC	1,554	1,101	281	110	36	26	132
Berkeley, Calif.	16	8	6	1	-	1	1
Fresno, Calif.	117	75	19	14	4	5	13
Glendale, Calif.	28	24	3	-	-	1	3
Honolulu, Hawaii	70	56	8	5	1	-	9
Long Beach, Calif.	88	62	14	10	2	-	12
Los Angeles, Calif.	466	325	88	34	12	7	27
Pasadena, Calif.	23	15	5	2	-	1	4
Portland, Oreg.	U	U	U	U	U	U	U
Sacramento, Calif.	U	U	U	U	U	U	U
San Diego, Calif.	149	111	24	8	3	3	16
San Francisco, Calif.	123	86	22	13	1	1	19
San Jose, Calif.	142	112	21	4	3	2	12
Santa Cruz, Calif.	28	17	6	2	2	1	1
Seattle, Wash.	130	90	26	10	1	3	2
Spokane, Wash.	80	60	14	1	5	-	6
Tacoma, Wash.	94	60	25	6	2	1	7
TOTAL	11,552¶	7,845	2,223	919	304	239	763

U: Unavailable -: no reported cases

*Mortality data in this table are voluntarily reported from 122 cities in the United States, most of which have populations of 100,000 or more. A death is reported by the place of its occurrence and by the week that the death certificate was filed. Fetal deaths are not included.

†Pneumonia and influenza.

§Because of changes in reporting methods in this Pennsylvania city, these numbers are partial counts for the current week. Complete counts will be available in 4 to 6 weeks.

¶Total includes unknown ages.

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The *Morbidity and Mortality Weekly Report (MMWR)* Series is prepared by the Centers for Disease Control and Prevention (CDC) and is available free of charge in electronic format and on a paid subscription basis for paper copy. To receive an electronic copy on Friday of each week, send an e-mail message to *listserv@listserv.cdc.gov*. The body content should read *SUBscribe mmwr-toc*. Electronic copy also is available from CDC's World-Wide Web server at *http://www.cdc.gov/* or from CDC's file transfer protocol server at *ftp.cdc.gov*. To subscribe for paper copy, contact Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402; telephone (202) 512-1800.

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☆U.S. Government Printing Office: 1998-633-228/67076 Region IV